

### REMARKS

Claims 3-4, 6-9, 14-15, and 19-30 have been cancelled. Claims 5 and 10 have been amended. Claims 1-2, 5, 10-13, and 16-18 are now pending in this application. Claims 11-13 and 16-18 are withdrawn. Support for the amendments is found in the existing claims and the specification as discussed below. Accordingly, the amendments do not constitute the addition of new matter. Applicant respectfully requests the entry of the amendments and reconsideration of the application in view of the amendments and the following remarks.

The specification has been amended throughout to designate SIGMACELL® and AVICEL® as trademarks. Additionally, the specification at paragraph 0013 has been amended to provide a chemical description for SIGMACELL® and AVICEL®. AVICEL® is defined as a microcrystalline cellulose. Support is found in Attachment A which includes a product description from the Sigma-Aldrich online catalog and also a description from the Merck index (Merck index, 9<sup>th</sup> edition, (Windholz, et al., eds.), Merck & Co., 1976). SIGMACELL® is defined as a high purity cellulose powder. Support is found in Attachment B which contains descriptions of the product from the Sigma-Aldrich online catalog.

The inventor provides the following additional information. SIGMACELL® and AVICEL® are available from Sigma-Aldrich. Both are pure crystalline which means that there is no amorphous cellulose present.

The claims have been amended to replace "cellulose derivative" with "carboxymethylcellulose" in claims 5 and 10. Claim 6 has been canceled.

The above is believed to be responsive to the remaining issues in the above-referenced application. In view of the present submission taken with the Amendment filed June 7, 2007, withdrawal of all grounds of rejection is respectfully requested.

### Rejoinder

Claims 11-13 and 16-18 remain withdrawn from consideration. Applicant respectfully submits that the withdrawn claims are commensurate in scope with claims 1 and 5 from which they depend and which are believed to be in condition for allowance. Rejoinder is requested.

### CONCLUSION

**Appl. No.** : 10/759,785  
**Filed** : January 16, 2004

In view of Applicant's amendments to the claims and the foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: Aug 2, 2007

By: Che S. Chereskin

Che Swyden Chereskin, Ph.D.

Registration No. 41,466

Agent of Record

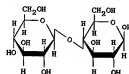
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## ATTACHMENT A

(1923); Charlton *et al.*, *ibid.* 1926, 89; Zemplén, *Ber.* 59, 1254 (1926); Haworth *et al.*, *J. Chem. Soc.* 1927, 2809; Peterson, Spencer, *J. Am. Chem. Soc.* 49, 2822 (1927); Helfrich *et al.*, *Ber.* 63, 992 (1930); Hess, Dziengel, *ibid.* 68, 1594 (1935); Hassid, Ballou *In The Carbohydrates*, W. Pigman, Ed. (Academic Press, New York, 1957) p 490. Synthesis: Haskins *et al.*, *J. Am. Chem. Soc.* 64, 1289 (1942). Review: Pazur *In The Carbohydrates* vol. 2A, W. Pigman *et al.*, Eds. (Academic Press, New York, 2nd ed., 1970) pp 109-110.



Minute crystals from dil alcohol which retain 0.25 to 0.50 mol water after drying in vacuo. Indifferent taste. Dec 225°. Shows mutarotation.  $[\alpha]_D^{25} +14.2^\circ$  (c = 1.34, 6' (15 hrs, c = 8)). One gram dissolves in 8 ml water, in 1.5 ml boiling water, almost insol in abs alc and ether. Reduces Fehling's soln. Hydrolysis with acid or emulsion yields 2 mols  $\beta$ -D-glucose. Not fermented by brewers' yeast, maltase, or invertase.

Cellulobiose phenylosazone,  $C_{28}H_{32}N_4O_8$ , mp 198-200°.  $[\alpha]_D^{25} -6.5^\circ$  (pyridine + alc).

Octaacetyl- $\alpha$ -hydrocellulose,  $C_{34}H_{48}O_{19}$ , mp 105-110°.

$[\alpha]_D^{25} +17.7^\circ$  (c = 3 in chloroform).

Octaacetyl- $\alpha$ -cellulobiose,  $C_{34}H_{48}O_{19}$ , mp 229°.  $[\alpha]_D^{25} +41^\circ$  (c = 6 in chloroform).

Octaacetyl- $\beta$ -cellulobiose, mp 202°.  $[\alpha]_D^{25} -14.7^\circ$  (c = 5 in chloroform).

1917. Cellophane. Francephane. Transparent, flexible cellulose sheeting made from viscose. The word "cellophane" is not a trademark in the U.S.

1918. Celluloid®. Pyralin; Zylonite. Prepd from nitrocellulose and camphor.

Colorless, amorphous mass. Flammable. Prone to spontaneous decompn which is retarded or prevented by the addition of urea, ZnO,  $MgCO_3$ , diphenylamine, etc. It is rendered less flammable by addition of ammonium phosphate. Softens in boiling water; sol in acetone.

USE: Plastic material for manu of toilet articles, toys, photographic films; substitute for amber, ivory, ebonite, tortoise shell; also in surgery for bandages and in dentistry as substitute for rubber.

1919. Cellulose. ( $C_6H_{10}O_5$ )<sub>n</sub>. Polysaccharide with the glucose units linked as in cellulose. Chief constituent of the fiber of plants; cotton is the purest natural form, contg about 90%. Rayon is regenerated cellulose. Books: C. Dorte, *The Methods of Cellulose Chemistry*, (Chapman & Hall, London, 1947); T. Lieser, *Kurzes Lehrbuch der Cellulosechemie*, (Gebriider Borntraeger, Berlin, 1953); S. D. Antonovskii, *Chemistry of Wood and Cellulose*, (Vsesoyuz. Nauchnyi Ispetkhi Inst., Leningrad, 1954); E. Ott *et al.*, *Cellulose and Cellulose Derivatives*, vols. 1-3 (Interscience, New York, 1954). Reviews: Several authors in *Encyclopedia of Polymer Science and Technology* vol. 3, N. Bikales, Ed. (Interscience, New York, 1965) pp 131-539; Shafizadeh, *Pure Appl. Chem.* 35, 195-208 (1973).

White substance. Practically insol in water or other usual solvents, but is dissolved by concd soln of zinc chloride, by ammoniacal copper hydroxide soln; also by caustic alkali with carbon disulfide.

Microcrystalline form, Avicel. Prepn and manu of crystalline cellulose aggregates: Battista, *Ind. Eng. Chem.* 42, 502 (1950); Battista, Smith, U.S. pats. 2,978,446 and 3,141,875 (1961 to Am. Viscose and 1964 to FMC). Non-fibrous powder. Particle shape rigid rods. Refractive index: 1.55. Bulk density: 18-19 lb/cubic foot. Practically insol, but dispersible in water; partially sol with swelling in dil alkali; practically insol in and resistant to dil acid; practically insol and inert in organic acids.

USE: Fibrous form is the basic material for the textile and paper industries. Nitrated it yields nitrocellulose used for

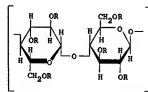
manuf of explosives, collodion, lacquers. Basic material also for cellulose acetate, cellulose xanthate. Also used in chromatography and as ion exchange material especially in the form of derivatives such as DEAE-cellulose (diethylamine-cellulose) and ECTEOLA-cellulose, *q.v.* Microcrystalline forms of cellulose are used as combination binder-disintegrants in tabletting, as separatory medium in thin-layer and column chromatography. Colloidal cellulose particles aid in stabilization and emulsification of liquid and foam systems. May be used as pure cellulose raw-material. Incorporation of cellulose crystallite aggregates in foods to reduce caloric content: Battista, U.S. pat. 3,023,104 (1962 to American Viscose).

1920. Cellulose Acetates. Partially acetylated cellulose, *q.v.* Several acetates of cellulose are known, which differ from one another only in the degree of acetylation. In triacetates, no less than 92% of the hydroxyl groups are acetylated. In characterizing the degree of acetylation, percent acetyl value and percent combined acid are used. All cellulose acetates are obtained by treating cellulose with acetic anhydride at various temps for different lengths of time to produce amorphous white solid material in granular, flake, or powder form from which fibers may be formed by extrusion. In the plastics industry, it is used to acetylate fully and then to lower the acetyl value to 52-56% by partial hydrolysis. Such material when compounded with suitable plasticizers gives a tough thermoplastic product. For review and list of acetate and triacetate trade names see Kirk-Othmer *Encyclopedia of Chemical Technology* vol. 1 (Interscience, New York, 2nd ed., 1964) pp 109-138.

Commercial products do not have sharp melting points. Solubility is affected by the acetyl value; the triacetate is insol in water, alcohol, ether, but sol in glacial acetic acid; the tetraacetate is insol in water, alcohol, ether, glacial acetic acid, methanol; the pentaacetate is insol in water, but sol in alcohol.

USE: Manuf rubber and celluloid substitutes, nonflammable photographic and cinema films, airplane dopes, varnishes and lacquers, filaments, phonograph records; waterproofing fabrics and rendering balloons gas-tight; sizing and finishing fabrics; coating skins; insulating electric wires; tow for cigarette smoke filters.

1921. Cellulose Ethyl Hydroxyethyl Ether. Ethyl hydroxyethyl cellulose; Etulose. Prepn: Jullander, *C.A.* 48, 6114g (1954); *idem*, Ger. pat. 1,000,367 (1957 to Mo och Domsjö A.B.). *C.A.* 54, 5088f (1960). Use as laxative: Alm, *C.A.* 50, 2122a (1956); *idem*, *Am. J. Dig. Dis.* [NS] 2, 493 (1957).

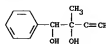


R is H, —CH<sub>2</sub>CH<sub>3</sub>, or —CH<sub>2</sub>CH<sub>2</sub>OH

THERP CAT: Carthartic.

1922. Celsian.  $BaO \cdot Al_2O_3 \cdot 2SiO_2$ —barium aluminum silicate.

1923. Centulan. 2-Methyl-1-phenyl-3-butyne-1,2-diol; 3,4-dihydroxy-3-methyl-4-phenyl-1-butyne; 3-methyl-3,4-dihydroxy-4-phenyl-1-butyne.  $C_{11}H_{14}O_2$ ; mol wt 176.21. *C* 74.97%, *H* 6.86%, *O* 18.16%. Prepn: Brit. pat. 966,115 (1964 to Boehringer, Ing.).



d-Form  
mg/kg;  
THERAP

1924. C-oxo-2-(3-benzopyrro-5-yl)-5,5,17,17-tetracyano-8,13,1168 (1964).

Monochy  
(c = 1.4)  
(log c 4.31)  
acetone; p

1925. C-square-stet-angulans (C-sima and southern C-Geniotipor (1954); 88, Am. J. Ph THERAP C

1926. C-Dried flow Robins (C Formerly I-leuts Willi amaromagi (1955).

THERAP C  
1927. C-bloodwort. turn Gilib. Habits. Eur Constit. G 87, 1357 (I THERAP C

1928. C-taurin, sp Gentianaceae North Ame; N: Korte, hypotensive 1, 219 (194

1929. C-Mi regulating Michel, San Santenose of respirato 671 (1957). *ibid.*, Bull. 155, 1529 (I (Bucharest)

1930. Ce (hydroxyme 2-carboxylti 7-C-cyano 7-C-arabicyclof- sodium 7-C 36278-Ba; C 43.21%, H 3 Prepn: Net



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[Product Name](#)

## 11365 Avicel® PH-101

Fluka **BioChemika**

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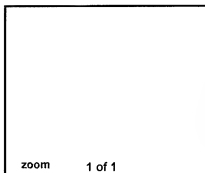
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S5504

S3504



**Synonym**

Cellulose microcrystalline

Cellulose powder

Cellulose

Cotton linters

9004-34-6

2326749

MFCD00081512

**CAS Number**

**EG/EC Number**

**MDL number**

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### Price and Availability

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### Descriptions

**Application**

High purity cellulose powders for partition chromatography.

**Legal Information**

® Registered Trademark of FMC Corporation

Avicel is a registered trademark of FMC Corp.

### Properties

**product line**

BioChemika

**particle size**

~50 µm

### References

**Merck**

Merck 13,1977

**reference**

RegBook 1 (2), 3159:J / Structure Index 1, 500:B:3 / Structure Index 1, 500:A:3

### Safety

**WGK Germany**

1

**RTECS**

FJ5691460

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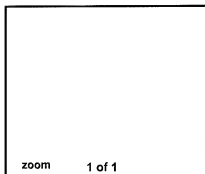
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Product Name

## 11363 Avicel® PH-101

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### Synonym

Cellulose microcrystalline  
 Cellulose powder  
 Cellulose  
 Cellulosum microcrystallinum  
 Cotton linters  
 CAS Number 9004-34-6  
 EG/EC Number 2326749  
 MDL number MFCD00081512

CAS Number  
 EG/EC Number  
 MDL number

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### Price and Availability

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### Descriptions

Application

High purity cellulose powders for partition chromatography.

Legal Information

© Registered Trademark of FMC Corporation

Avicel is a registered trademark of FMC Corp.

### Properties

grade

Ph Eur

pharmacopeia

testing & handling conforms to Pharmacopeia

### References

Merck

Merck 13,1977

reference

RegBook 1 (2), 3159.J / Structure Index 1, 500:B:3 / Structure Index 1, 500:A:3

### Safety

WGK Germany

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## ATTACHMENT B



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Product Name

## S3504 SigmaCell Cellulose

Sigma-Aldrich Type 20, 20 µm

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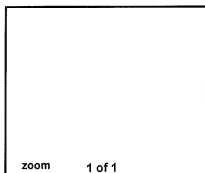
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Synonym

Cellulose powder

Cellulose

Cotton linters

CAS Number

9004-34-6

EG/EC Number

2326749

MDL number

MFCD00081512

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### Price and Availability

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### Descriptions

Application

High purity cellulose powders for partition chromatography.

Makes extremely durable layers. Sharp separations for amino acids, sugars and other hydrophilic substances. Development time as short as 2 hours for 8" plates.

Reconstitution

For TLC, simply blend a 15-20% aqueous slurry for about one minute and coat plates; dry at room temperature. Usually does not require activation before use.

Legal Information

SigmaCell is a trademark of Sigma-Aldrich Biotechnology LP.

### Properties

type

Type 20

particle size

20 µm

### References

Merck

Merck 13,1977

reference

RegBook 1 (2), 3159:J / Structure Index 1, 500:B:3 / Structure Index 1, 500:A:3

### Safety

WGK Germany

1

RTECS

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### Related Categories

... Bulk Adsorbents for TLC > Cellulose TLC Adsorbents

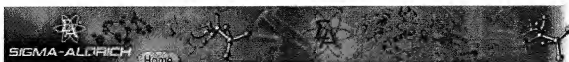
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S3504

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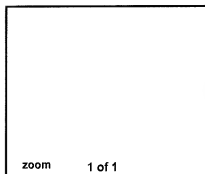


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[Product Name](#)

## S5504 Sigmacell Cellulose

Sigma-Aldrich Type 50, 50 µm



Synonym

Cellulose powder

Cellulose

Cotton linters

CAS Number

9004-34-6

EG/EC Number

2326749

MDL number

MFCD00081512

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### Price and Availability

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### Descriptions

#### Application

Faster development times than Type 20 (1-4 hours) with a little loss of resolution.

May yield a colored background.

High purity cellulose powders for partition chromatography.

#### Reconstitution

For TLC, simply blend a 15-20% aqueous slurry for about one minute and coat plates; dry at room temperature. Usually does not require activation before use.

#### Legal Information

Sigmacell is a trademark of Sigma-Aldrich Biotechnology LP.

### Properties

#### type

Type 50

#### particle size

50 µm

### References

#### Merck

*Merck* 13,1977

#### reference

*RegBook* 1 (2), 3159:J / *Structure Index* 1, 500:B:3 / *Structure Index* 1, 500:A:3

### Safety

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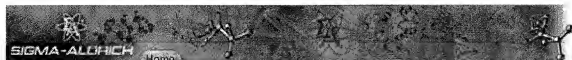
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... Bulk Adsorbents for TLC > [Cellulose TLC Adsorbents](#)

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[Product Name](#)

## S6790 SigmaCell Cellulose

Sigma-Aldrich **Type 101, Highly purified, fibers**

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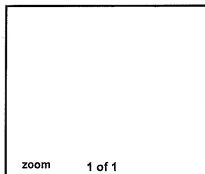
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S6790

S5504

S3504



**Synonym**

Cellulose powder

Cellulose

Cotton linters

**CAS Number**

9004-34-6

**EG/EC Number**

2326749

**MDL number**

MFCD00081512

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### Price and Availability

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### Descriptions

**Application**

Extremely useful for rapid TLC of nucleotides, amino acids, sugars, phenolics, etc. Development time only 0.5 to 3 hours for 8" plates. Usually yields a clear colorless background.

**Reconstitution**

High purity cellulose powders for partition chromatography.

For TLC, simply blend a 15-20% aqueous slurry for about one minute and coat plates; dry at room temperature. Usually does not require activation before use.

**Legal Information**

SigmaCell is a trademark of Sigma-Aldrich Biotechnology LP.

### Properties

**type**

Type 101

**form**

fibers

### References

**Merck**

Merck 13,1977

**reference**

RegBook 1 (2), 3159:J / Structure Index 1, 500:B:3 / Structure Index 1, 500:A:3

### Safety

**WGK Germany**

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**RTECS**

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**F**

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### Related Categories

... Bulk Adsorbents for TLC > Cellulose TLC Adsorbents

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